EDITORIAL COMMENT

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California and Nevada Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

I

The Growing Complexities of Serum-Therapeutic Logic.*—Were a professional immunologist to attempt to epitomize the clinical meaning of the newer theories of serology, he could not do better than select a single typical example. Few examples would be better fitted to this purpose than the classical attempts to prepare a clinically useful antipoliomyelitis serum by the injection of spinal-cord emulsions of experimentally infected monkeys into horses. Twenty years ago the qualitative success of this technical method was axiomatic. To the newer dynamic serology and microbiology, however, this axiom is replaced by a pyramid of a dozen basic hypotheses. An appreciable error in any one of these hypotheses would vitiate the hoped-for therapeutic success. Among these hypotheses now substituted for the classical intuition are:

(*a*) The assumption that human poliomyelitis is a specific infectious disease, caused by a qualitatively invariable extraneous infectious agent, and is not a mere symptom complex of multiple extrinsic or intrinsic etiology. (Quantitative variations in this hypothetical unit virus, such as increases or decreases in its specific virulence, would, of course, not vitiate the classical logic.)

(*b*) The assumption that human convalescent immunity to this disease is specific, that the sole or essential factor in this acquired immunity is the formation or liberation of specific humoral antibodies. (An essentiallly nonhumoral or specific cellular immunity has been recently alleged for certain other infectious diseases.)

(*c*) The assumption that this hypothetical unit virus is not "transformed" or does not "mutate" into a new biochemical specificity on injection into monkeys. (Such qualitative adaptations of microbic specificity have been recently alleged for certain other infectious agents.)

(*d*) The assumption that the subcutaneous or intravenous "specificity differential" between the antirhesus phase of this virus and the tissues of the horse, is qualitatively identical with its original antihuman "specificity differential" in man. (Horse immunity and human immunity are known to be directed against different chemical factors in certain antigens, the horse antiserums being deficient in certain antibody factors presumably essential for man.)

(*e*) The assumption that the rhesus spinal cord does not contain "heterophile" or fractional human specificities in sufficient quantities to stimulate the production of antihuman endotheliotoxins or neurotoxins in the horse. (Such accessory cytotoxins against certain animal species are known to be produced when certain antigens are injected into certain other animal species.)

(*f*) The assumption that the horse antibodies injected into man would not function as specific growth stimulants for the already present poliomyelitis virus nor produce a clinically dangerous specific immunological negative phase. (That certain presumably immune serums act as specific growth stimulants for the corresponding bacteria is one of the recent surprises of theoretical immunology. The precipitous lowering of specific resistance is a recently recognized contraindicant for certain proposed methods of specific vaccine therapy.)

To which must be added (*g*) the classical hope that the horse antibodies can be produced in sufficiently high titer for clinical use and that, injected into man, these alien humoral defenses are not denatured, bound or otherwise inactivated with sufficient rapidity to prevent their hoped-for therapeutic value.

Research serologists today are frankly and courageously facing a score of such hitherto ignored biological complexities, with numerous newly plausible explanations of previous clinical nonsuccess, and renewed hope of ultimate therapeutic victory.

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(To be continued)

Encephalography.—Encephalography not only aids in the diagnosis of obscure brain lesions, but is also of definite therapeutic value in certain neurological diseases. Encephalography is the x-ray visualization of the cerebral subarachnoid spaces and the cerebral ventricles by means of the fractional removal of cerebrospinal fluid by cisternal or lumbar puncture with a fraction insufflation of air.

The encephalogram reveals the size of the ventricles, whether they are dilated, as in hydrocephalus; contracted, distorted or pushed to one side of the brain, as in tumor; or whether they are of normal size and position. The third ventricle, the aqueduct of Sylvius, and the fourth ventricle are outlined. Any obstructions in these areas, or failure to fill can be readily interpreted. Abnormalities in the subarachnoid space are visualized, such as arachnitis—referring to adhesions of the arachnoid—with a resultant absence of air over the cortex, or extensive pockets of air as occurring in so-called cortical atrophy, or changes in position of the head on x-ray film.

* This is the first of a series of three papers.